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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/224,961	04/08/94	MOUROU	G UM939

21M1/0121
BARNES, KISSELLE, RAISCH, CHOATE,
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DETROIT MI 48226-4217

EXAMINER

EVANS, G

ART UNIT	PAPER NUMBER
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2106

167
01/21/97

DATE MAILED:

NOTICE OF ALLOWABILITY

PART I

1. ☒ This communication is responsive to The amendment of November 8, 1996
2. ☒ All the claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice Of Allowance And Issue Fee Due or other appropriate communication will be sent in due course.
3. ☒ The allowed claims are 1-45
4. ☐ The drawings filed on _____ are acceptable.
5. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received. ☐ not been received. ☐ been filed in parent application Serial No. _____ filed on _____
6. ☐ Note the attached Examiner's Amendment.
7. ☐ Note the attached Examiner Interview Summary Record, PTOL-413.
8. ☒ Note the attached Examiner's Statement of Reasons for Allowance.
9. ☒ Note the attached NOTICE OF REFERENCES CITED, PTO-892.
10. ☒ Note the attached INFORMATION DISCLOSURE CITATION, PTO-1449.

PART II

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" indicated on this form. Failure to timely comply will result in the ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

1. ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
2. ☒ APPLICANT MUST MAKE THE DRAWING CHANGES INDICATED BELOW IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS PAPER.
- a. ☒ Drawing informalities are indicated on the NOTICE RE PATENT DRAWINGS, PTO-948, attached hereto or to Paper No. 17. CORRECTION IS REQUIRED.
- b. ☐ The proposed drawing correction filed on _____ has been approved by the examiner. CORRECTION IS REQUIRED.
- c. ☐ Approved drawing corrections are described by the examiner in the attached EXAMINER'S AMENDMENT. CORRECTION IS REQUIRED.
- d. ☒ Formal drawings are now REQUIRED.

Any response to this letter should include in the upper right hand corner, the following information from the NOTICE OF ALLOWANCE AND ISSUE FEE DUE: ISSUE BATCH NUMBER, DATE OF THE NOTICE OF ALLOWANCE, AND SERIAL NUMBER.

Attachments:

- Examiner's Amendment
- Examiner Interview Summary Record, PTOL-413
- ☒ Reasons for Allowance
- ☒ Notice of References Cited, PTO-892
- ☒ Information Disclosure Citation, PTO-1449

- Notice of Informal Application, PTO-152
- ☒ Notice re Patent Drawings, PTO-948
- Listing of Bonded Draftsmen
- Other

Please send in copies of
re Information Disclosure Statements
of 8-19-94, as they
appear to be missing from the
e wrapper.

Geoffrey S. Evans

Geoffrey S. Evans
PRIMARY EXAMINER
GROUP 210

Part III REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: Singh treats a surface layer with 50 pulses with a duration of 100 femtoseconds to 1 millisecond and an energy density of 0.01 to 15 J/cm². Alfano et al. determines if biological tissue is malignant by applying pulses with a duration of 100 fs and pulse energy of .5 microjoules, in which the resulting fluorescence is measured by a camera. Whitlock in U.S. Patent No. 5,335,258 in column 2 , lines 65-69 notes that the period of duration is of any duration required to support the 10⁹ watts/cm² required for ablation plasma generation and further notes in column 3, lines 2 and 3 that "Subpicosecond laser pulses may require higher irradiances to form an ablation plasma". Kuper et al. in WO 89/08529 ablates fluoroplastics with laser pulses of 300 fs and a fluence between 0.5 and 1 J/cm² . None of the references of record shows , teaches or suggests a laser induced breakdown of a material characterized by a relationship of fluence breakdown threshold versus laser pulse width that exhibits a rapid and distinct change in slope at a predetermined laser pulse width so that ablation by laser pulses having a width equal to or less than the predetermined pulse width laser uses a lower pulse energy than that of the prior art in the

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femtosecond range to ablate without thermal effects to enable more precise machining of the substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoff Evans whose telephone number is (703) 308-1653.

GSE
January 21, 1997


GEOFFREY S. EVANS
PRIMARY EXAMINER
GROUP 210